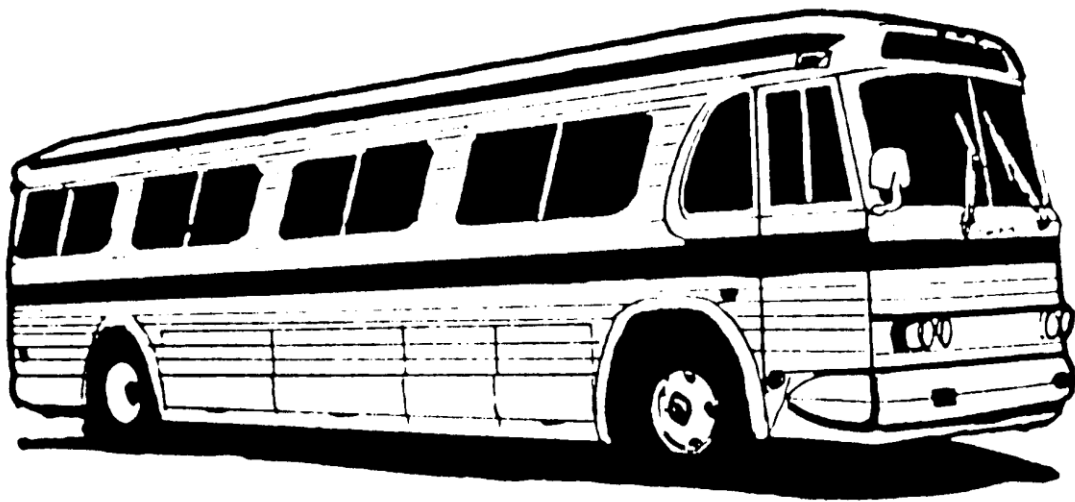


X-6220

OPERATING MANUAL



***MODEL
PD-4106***

56014

Lubrication Chart

PD4106

Item No.	Item	Remarks	Miles	Symbol
1	Engine	Keep to "FULL" mark - 22 qts.	Daily	E
2	Oil Filter	Replace element at engine drain	4,000	E
3	Blower Air Cleaners	Keep to "Level" mark on dipstick	1,500	E
4	Power Steering System	To "Level" mark on dipstick	1,500	S19
5	Control Rod Linkage	Brush or spray	1,500	E
6	Steering Column Bevel Gear Housing	Fitting - to level of breather	1,500	SG
7	Steering Gear Housing (At Axle)	Fitting - to level of breather	1,500	SG
8	Clutch Release Bearing	One turn of grease cup	1,500	S2
9	Battery Terminals	Keep coated	1,500	S3
10	Steering Knuckles	Two fittings each side	1,500	C
11	Steering Tie Rod Ends	One fitting each end	1,500	C
12	Steering Drag Link Ends (Manual Stg.)	One fitting each end	1,500	C
13	Steering Drag Link Ends (Power Stg.)	One fitting - hand gun - sparingly	1,500	SG
14	Steering Booster Ends (Power Stg.)	One fitting each end	1,500	C
15	Steering Prop. Shaft U-Joints	One fitting each joint	1,500	G
16	Steering Prop. Shaft Slip Joint	One fitting each joint	1,500	C
17	Steering Prop. Shaft Support Bearing	One fitting	1,500	C
18	Slack Adjusters F. & R.	One fitting each	1,500	C
19	Brake Camshafts - Front	One fitting each	1,500	C
20	Brake Camshaft - Rear	Thru temporary fittings	1,500	C
21	Parking Brake Bell Crank Lever	Two fittings	1,500	C
22	Parking Brake Camshaft	One fitting	1,500	C
23	Parking Brake Bell Crank	One fitting	1,500	C
24	Control Rods Bell Crank Pins	Two fittings at right side	1,500	C
25	Clutch Pedal	One fitting	1,500	C
26	Clutch Release Shaft	One fitting each end	1,500	C
27	Clutch Control Cross Shaft	One fitting each end	1,500	C
28	Transmission Control Tower	One fitting	1,500	C
29	Transmission Control Levers	Two fittings	1,500	C
30	Prop. Shaft U-Joints	One fitting each joint	1,500	G
31	Air Cond. Compressor Drive U-Joints	Two fittings	1,500	G
32	Prop. Shaft Slip Joint	One fitting	1,500	C
33	Air Cond. Compressor Drive Slip Joint	One fitting	1,500	C
34	Air Cond. Compressor Clutch Shaft	Pack at assembly	-	S26
35	Destination Sign Gears	Apply	1,500	C
36	Front Door Hinges	One fitting each hinge	1,500	C
37	Starter	Three oil plugs	3,000	E
38	Clutch Shift Air Cylinder	Thru plug openings - 1 oz. ea. end	10,000	E
39	Clutch Shift Control Valve	Thru oiler	10,000	E
40	Air Cond. Clutch Air Cylinder	Thru plug opening - 1 oz.	10,000	E
41	Transmission	To mark on dipstick	1,500	E
		Drain and refill - 10-1/2 qts.	15,000	E
42	Transmission Oil Filter	Replace assembly	4,000	-
43	Rear Axle Differential	To level of filler plug	1,500	MP
		Drain and refill - 18 pts.	15,000	MP
44	Wheel Bearing - F. R.	Hand pack or use lubricator. Do not use pressure gun.	15,000	S2
45	Air Conditioning Compressor	See "Instructions"	-	S25
46	Air Cond. Condenser Fan Drive	See "Instructions"	-	S19
47	Speedometer Cable (When Used)	Coat inside cable	25,000	SG
48	Tachometer Cable (When Used)	Coat inside cable	25,000	SG

X-6114

LUBRICANT SYMBOLS

- E - Engine Oil

C - Chassis Lubricant

G - Gear Oil - Straight Mineral

MP - Multi-Purpose Gear Lubricant

SG - Steering Gear Lubricant
- S2 - High Temperature Grease

S3 - Petrolatum - Petroleum Jelly

S19 - Type A Fluid

S25 - Air Conditioning Compressor Oil

S26 - Special Multi-Purpose Grease

TO THE OPERATOR OF THE PD-4106 PARLOR COACH

This operating manual has been prepared to acquaint you with the necessary information to properly operate this coach and to provide maximum comfort and safety for your passengers.

No attempt has been made herein to teach you the skill of driving, rules of the road, or requirements of the I.C.C., as these phases of operation have already been acquired by you.

Complete knowledge of your vehicle's equipment and the operating procedure of same will add to your skill as an operator.

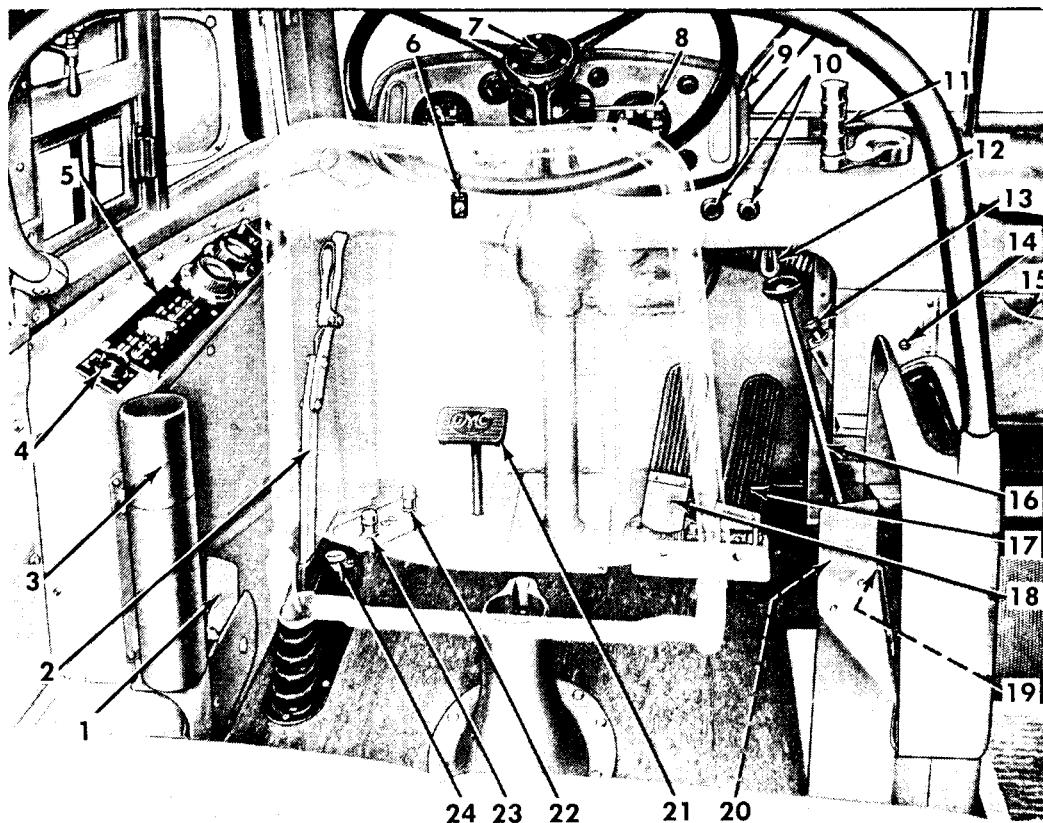
IMPORTANT: Report any malfunction or defect of coach on Form M-7 (Defect Report) carried in card holder (item 15, page 1).

DRIVING CONTROLS

All controls, gauges, and switches used to normally drive the coach and to control lights, heating, and air conditioning are arranged in what is generally termed as the "Operator's Compartment." All of these controls are readily accessible to the operator while he is in the driver's seat. Any controls which the operator may have occasion to use under other than normal conditions are explained throughout the manual.

The purpose and location of the important *driving* controls are discussed on the next few pages. Study these and know their purpose and function. The balance of the manual describes step by step operations necessary to successfully operate the coach.

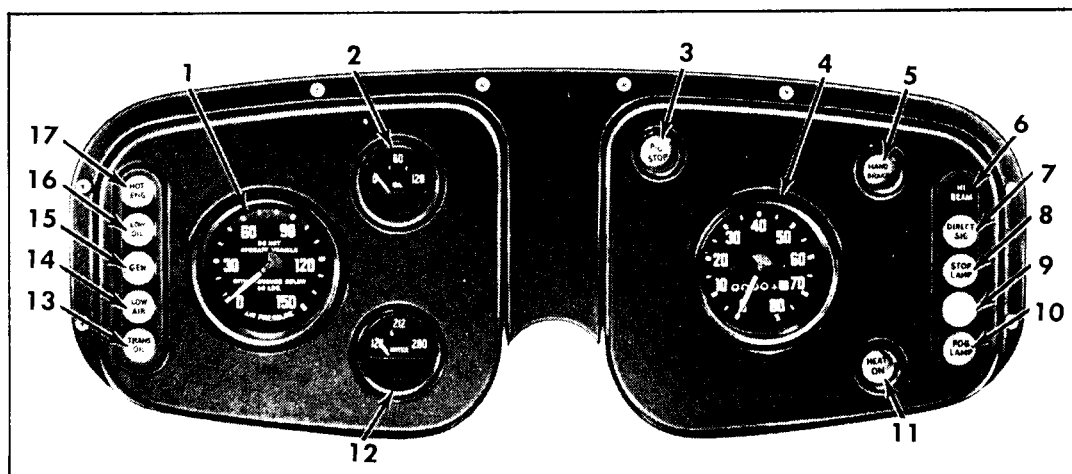
First—Know your controls



Operator's Compartment and Driving Controls

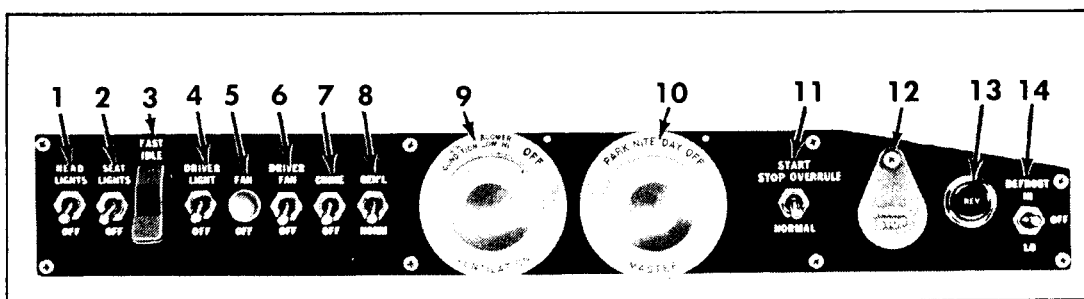
Item	Name	See Page
1	Operator's Heat and Cooling Control Damper	19
2	Hand Brake Lever	14
3	Flags and Fusee Container	34
4	Heating System Temperature Range Control	18
5	Control Panel	3
6	Emergency Flashing Signal Switch	31
7	Electric Horn Control Button	
8	Directional Signal Switch Lever	17
9	Gauge and Tell-tale Panel	2
10	Windshield Wiper Controls	7
11	Door Control Handle	7
12	Cowl Air Vent Control	8
13	Defroster Heater Temperature Control Knob	8
14	Defroster Heater Core Vent Screw	23
15	Defect and Mileage Record Card Holder	
16	Transmission Shift Lever	13
17	Accelerator Pedal	
18	Service Brake Treadle	14
19	P.A. System Controls	8
20	I.C.C. Emergency Brake Control Valve	15
21	Clutch Pedal	13
22	Headlight and Fog Light Selector Switch	16
23	Headlight Dimmer Switch	16
24	Air Horn Button	

GAUGE AND TELL-TALE PANEL



Item	Name	Use	See Page
1	"AIR PRESSURE" Gauge	Indicates air pressure in system	10
2	"OIL" Gauge	Indicates engine oil pressure	11
3	"A/C STOP" Tell-tale	Lights when air conditioning system is not operating	19
4	SPEEDOMETER (Tachograph on some vehicles)	Indicates vehicle miles-per-hour	
5	"HAND BRAKE" Tell-tale	Lights when hand brake is applied	14
6	"HI BEAM" Tell-tale	Lights when headlight high beam is used	16
7	"DIRECT SIG" Tell-tale	Flashes on and off when directional signals or emergency flashing system are operating	17
8	"STOP LAMP" Tell-tale	Lights when service brakes are applied or emergency flashing system is operating	17
9	(Not Used)		
10	"FOG LAMP" Tell-tale	Lights when fog lamps are illuminated	16
11	"HEAT ON" Tell-tale	Lights when heating control calls for heat	18
12	"WATER" Gauge	Indicates temperature of engine cooling system	11
13	"TRANS OIL" Tell-tale	Lights when transmission oil pressure is low	12
14	"LOW AIR" Tell-tale	Lights when air pressure is low	10
15	"GEN" Tell-tale	Lights when generator is not charging	11
16	"LOW OIL" Tell-tale	Lights when engine oil pressure is low	11
17	"HOT ENG" Tell-tale	Lights when engine cooling system temperature is high	11

THE CONTROL PANEL



Located at Left of Operator

Item	Name	Use	See Page
1	"HEADLIGHTS" Switch	Controls headlights and fog lights—when "MASTER" switch is in "DAY" or "NITE" position	16
2	"SEAT LIGHTS" Switch	Controls seat lights with "MASTER" switch in "NITE" position	17
3	"FAST IDLE" Switch	Controls engine fast idle and applies rear brakes	10
4	"DRIVER LIGHT" Switch	Controls driver's light	16
5	SWITCH Opening Plug		
6	"DRIVER FAN" Switch	Controls fan above windshield	8
7	"CHIME" Switch	Controls passenger signals and entrance door step light	7
8	"GEN'L—NORM" Switch	Controls general lights	16
9	"VENTILATION" Switch	Controls heating and air conditioning systems	18
10	"MASTER" Switch	To control engine and various lights, etc., under selected "DAY," "NITE," and "PARK" position	4
11	"START" Switch	To start engine and to overrule automatic shut-off system	9 & 11
12	"EMERG STOP" Switch	To stop engine, in event engine fails to stop when the "MASTER" switch or the "ENGINE CONTROL" switch at rear of vehicle is placed in "OFF" position	12
13	"REV" Switch	To select transmission reverse position	13
14	"DEFROST" Switch	Controls defroster heater fan	7

MASTER CONTROL SWITCH

Coach "Master" control switch is located on control panel at left of operator. Switch is marked "MASTER" — with circuit positions marked "OFF," "DAY," "NITE," and "PARK." Selected circuits become energized when circuit caption on switch is rotated into alignment with position indicator button on control panel.

"DAY" Position

- A. Engine controls, gauges, and alarm systems
- B. Generator controls
- C. Speedometer control
- D. *Transmission reverse control and oil pressure alarm system
- E. *Headlights and/or for lights**
- F. *Heating and defrosting system (when engine is running)
- G. *Air conditioning system (when engine is running)
- H. Restroom controls
- I. *Driver's fan
- J. *Defroster heater fan.



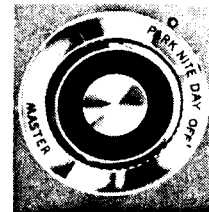
"NITE" Position

- A. All circuits shown for "DAY" position above
- B. Instrument lamps
- C. Marker lamps
- D. Clearance lamps
- E. Tail lamps
- F. License plate lamps
- G. *Headlights and/or fog lights**
- H. Destination sign lamps
- I. *Reading lamps
- J. Restroom lamp
- K. *Seat lamps



"PARK" Position

- A. Instrument lamps
- B. Marker lamps
- C. Clearance lamps
- D. Tail lamps
- E. License plate lamps
- F. *Reading lamps
- G. General lamps
- H. Destination sign lamps
- I. Restroom lamps
- J. *Seat lamps



- (*) Controlled by separate switch
- (**) Selection by foot-operated switch

OPERATING ALARM SYSTEMS

Coaches are equipped with alarm systems which instantly signal various abnormal conditions by means of tell-tale lights and buzzer. The tell-tale lights, located on gauge and tell-tale panel, illuminate and display name of condition when condition occurs while the "MASTER" switch is in "DAY" or "NITE" position, with exceptions as indicated (*) in chart below.

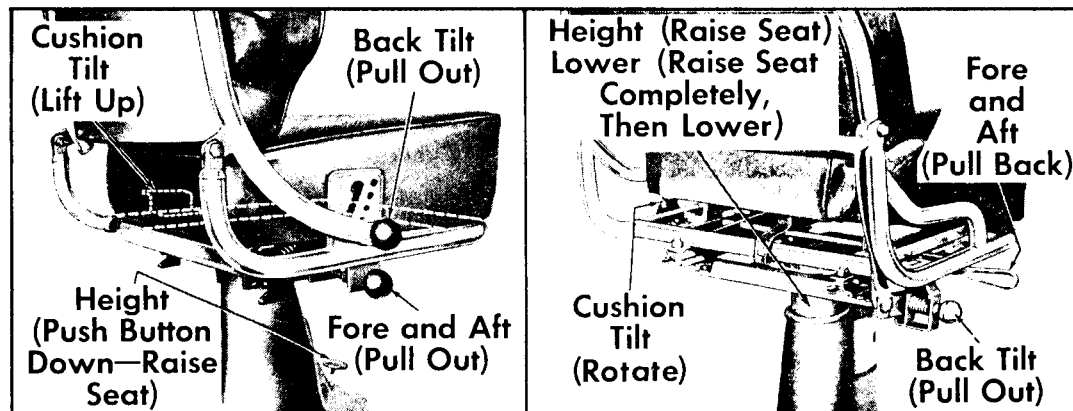
Condition	Audible Alarm	Tell-tale Light	Refer to Page
Generator not charging	None	"GEN"	11
Engine low oil pressure	Buzzer	"LOW OIL"	11
Transmission low oil pressure	None	"TRANS OIL"	12
Low air pressure	Buzzer	"LOW AIR"	10
Engine overheated	Buzzer	"HOT ENG"	11
*Emergency flasher	None	"DIRECT SIG" & "STOP LAMP"	31
Hand brake applied	Buzzer	"HAND BRAKE"	14
Air conditioning off	None	"A/C STOP"	19
Heating system operating	None	"HEAT ON"	18
Headlight high beam	None	"HI BEAM"	16
Fog lamps on	None	"FOG LAMP"	16
*Directional signals on	None	"DIRECT SIG"	17
*Stop lamps on	None	"STOP LAMP"	17

*Signal operative regardless of "MASTER" switch position

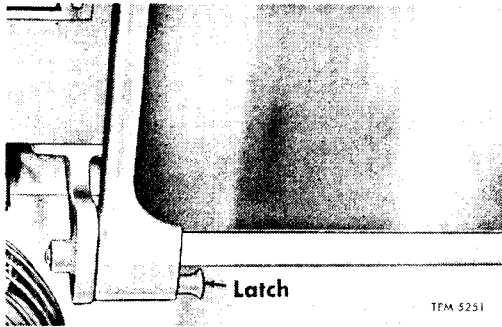
FOR THE OPERATOR

Operator's Seat

Seat used on these coaches may be either one of two types as shown below. Instructions for making the various seat adjustments are explained on respective views.



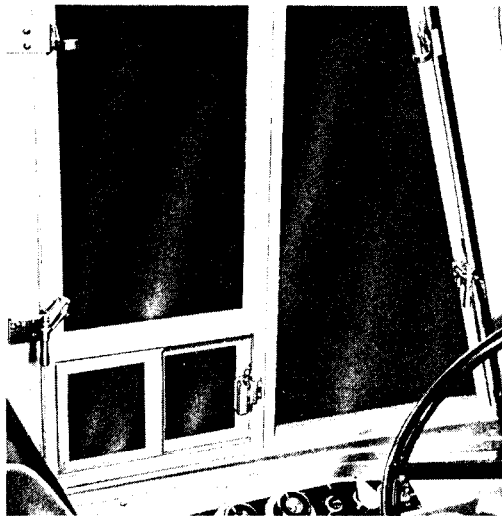
FOR THE OPERATOR (Cont.)



Right Sun Visor

Windshield Sun Visors

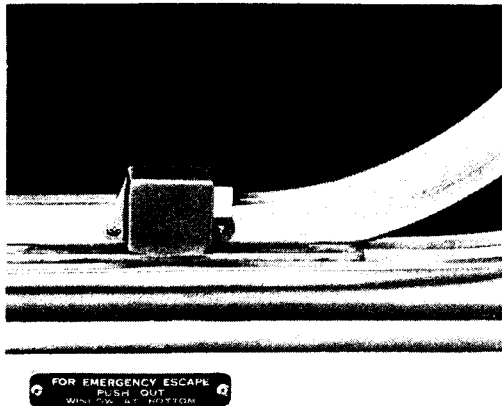
The windshield left sun visor can be positioned manually by the operator. The right sun visor has a spring-loaded latch at the left side as shown in illustration. Pull latch button to right, then position visor. When latch button is released, visor is locked into position.



For Your Convenience

Operator's Window

The forward half and the rearward half of operator's window are hinged in the center. Each window half is held shut with a latch at the top. Each half is positioned open with individual operating over-center levers. The lower forward part of rear window will slide to the rear to permit hand signals, etc.



Emergency Escape

Side Window Emergency Escape

In emergency the entire side window sash can be opened from the inside for escape. Windows are hinged at top and can be opened by pushing out at the bottom. Coaches are equipped with passenger instruction decal reading "For Emergency Escape Push Out Window At Bottom" at base of each window.

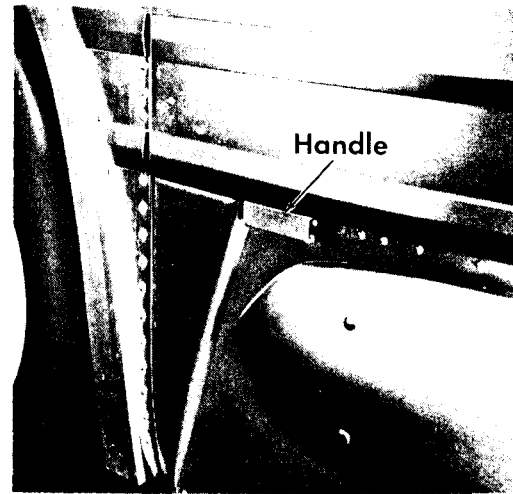
NOTE: Whenever it is noted that a side window is open, window must be closed immediately. Close window by lifting window up and inward over striker plates. **DO NOT SLAM TO CLOSE.**

ENTRANCE DOOR CONTROL

Passenger door is manually operated by a control handle (11, page 1) on windshield ledge at right of operator. Pull handle rearward and to the left to open door. With the passenger signal switch in "CHIME" position, the door-operated step light switch is energized. Step light illuminates when door is opened.

Door can be manually closed from the outside after control lever is pulled from latched-open position. From outside, push door until closed and latched.

To unlatch door from outside, push on release rod (1, page 25) which extends through body at front. After rod is pushed, door can be pulled open from outside using grab handle at bottom of door. Release rod is drilled at outer end to permit installation of padlock for purpose of locking door.

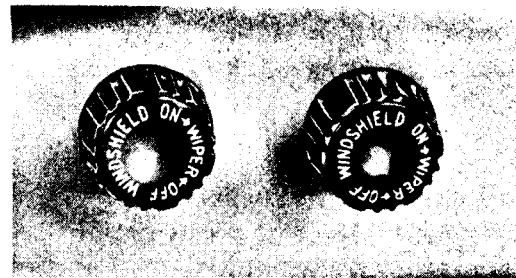


Grab Handle Location

WINDSHIELD WIPERS

Two windshield wiper control knobs are mounted on dash panel in front of driver. Left knob controls wiper on left half of windshield while right knob operates right wiper.

To operate either wiper, turn knob toward "ON" position to degree of blade speed desired. To stop wiper, turn knob to "OFF." If blade is not positioned as desired, give knob $\frac{1}{4}$ turn toward "ON," then back to "OFF." If wipers fail to operate properly, report condition.

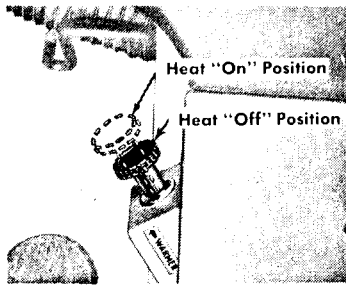


Wiper Control Knobs

WINDSHIELD DEFROSTER

Windshield defroster fan is controlled by "DEFROST" switch (14, page 3) on control panel at left of operator. Fan is operative only when the "MASTER" control switch is in "DAY" or "NITE" position. With "DEFROST" switch in "HI" or "LO" position, fan will operate at respective speed. Fan is stopped with switch in "OFF" position. Air is directed over surface of windshield through openings in ledge.

WINDSHIELD DEFROSTER (Cont.)



Defroster Temperature Control

Temperature of defrosting air can be regulated by defroster heater temperature control (13, page 1) located behind dash panel at right of operator. The control meters the flow of water through the defroster heater core. Control knob can be pulled up to increase heat, or pushed down to shut off heat.

NOTE: Excessive use of defroster heater will cause high temperature at the front end of coach, thereby satisfying the thermostat and leaving the balance of the coach cold.

Cowl Vent Control

When defrosting, outside air should be admitted into defroster heater compartment. Push cowl vent control (12, page 1) completely forward to full open position.

CARBON MONOXIDE

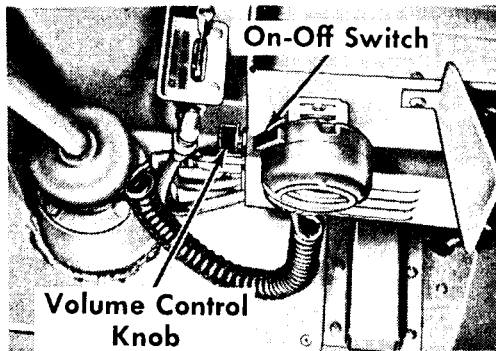
Keep cowl vent air intake closed when operating in congested traffic to prevent exhaust gases from entering coach.

Windshield Fan

A small fan, mounted over center of windshield, directs air over windshield sections. Fan is controlled by the "DRIVER FAN" switch located on control panel and is operative only when the "MASTER" control switch is in "DAY" or "NITE" position.

P. A. SYSTEM CONTROL

Two controls located on closure panel at right of operator are used to operate the P.A. system. The on-off control button is located on the microphone and the volume control knob is located on the amplifier



box. Press downward on microphone button to turn system on. Releasing button turns system off. To raise the volume, turn volume control knob clockwise. Turning knob counterclockwise lowers volume.

Check operation of system and set volume control prior to making run.

ENGINE OPERATION

Controls necessary to start and stop engine from the operator's compartment are mounted on the control panel at left of driver. These controls are:

"MASTER" control switch (item 10, page 3). This switch must be placed in "DAY" position when starting engine. Placing switch in "OFF" position stops engine.

"START" switch (item 11, page 3). This switch is a "momentary-on" type switch, and the switch must be held in "START" position to engage the starter. When switch is released, it returns to "NORMAL" position. This switch is also used as a "STOP OVERRULE" switch to overrule the engine automatic shut-off system; refer to "Engine Alarm System" on page 11 for explanation of the stop overrule feature.

"EMERG. STOP" switch (item 12, page 3). This is a "momentary-on" type switch used to stop the engine in the event it fails to stop when "MASTER" control switch is turned to "OFF" position. Hinged guard over switch must be swung to one side to use switch. The switch button must be pressed in to activate the emergency stop mechanism. Resetting of engine stop mechanism is explained on page 12.

GAUGES AND TELL-TALE LIGHTS (page 2). Oil pressure and temperature gauges, together with "LOW OIL" and "HOT ENG." tell-tale lights, are located in gauge panel in front of operator. A buzzer sounds when either of the two tell-tales are illuminated.

STARTING THE ENGINE

1. Apply hand brake and place transmission shift lever in neutral.
2. Place "MASTER" control switch in "DAY" position only. Engine will start in "NITE" position; however, it is preferable to start in "DAY" position, to avoid lighting load while cranking engine.

NOTE: When "MASTER" control switch is placed in "DAY" or "NITE" position, "LOW OIL" tell-tale will light and buzzer will sound. "LOW AIR" tell-tale will light if air pressure is below 60-65 pounds and the "TRANS. OIL" and "GEN" tell-tales will light. Lights will remain illuminated and buzzer will sound after the engine has started until oil pressure is over 3 pounds and air pressure is above 60-65 pounds.

3. Lift "START" switch lever to engage starter. Release switch lever the instant the engine starts.

CAUTION: Do not engage starter longer than 15 seconds continuously. If engine does not start at the first try, wait 10 to 15 seconds before second attempt.

4. Refer to "Emergency Conditions" on page 30 for instructions regarding starting engine at rear of coach.

STARTING THE ENGINE (Cont.)

Cold Weather Starting

Coaches are equipped with a cold weather starting fluid cup. When temperature is below 35°F., it may be necessary to use a starting fluid.



Starting Fluid Cup

This practice should be avoided unless absolutely necessary. If necessary to use starting fluid, use one 7 cc. capsule during above-zero temperature, or two 7 cc. capsules if temperature is below zero.

To use the capsule, raise the cover of the small cup on the blower intake manifold and force the capsule down onto the pointed tube in the cup. Squeeze the capsule dry, remove from cup and discard, and allow the spring-loaded cover to shut tightly. Start engine by the usual method.

FIRE WARNING

Starting fluid used in capsules is inflammable, toxic, and possesses anesthetic properties. Starting capsules should be stored in accordance with local fire regulations. Keep capsules away from open fire. **NO SMOKING** while using starting fluid capsules to start engine.

DURING OPERATION

Warm-Up

After a cold engine has started, increase speed to a fast idle for warm-up period, using "FAST IDLE" switch (3, page 3) on control panel. To provide fast idle operation, place switch lever up to "FAST IDLE" position and apply hand brake. Rear brakes will be automatically applied. During engine warm-up and during engine operation, observe the gauge and tell-tale panel at frequent intervals. The gauges and tell-tale lights indicate normal and abnormal operation of the engine. The margin of safety in the gauges and tell-tales is enough to warn the operator of trouble before any serious damage occurs.

Air Pressure

The air pressure on these vehicles is very important. Besides the brake and air suspension system, other systems of the vehicle depend upon air pressure for their operation.

During warm-up, the "LOW AIR" tell-tale will light and buzzer will sound until air pressure is built up to 60-65 pounds. Do not move coach until air pressure is at least 80 pounds to assure safe braking. Use "FAST IDLE" switch and apply hand brake to run engine at fast idle while building up air pressure.

DURING OPERATION (Cont.)

If during operation the tell-tale "LOW AIR" lights and buzzer sounds, indicating low air pressure, **stop the coach as quickly as possible and determine and correct cause of low pressure before proceeding.**

Engine Oil Pressure

Engine oil pressure gauge (2, page 2) is mounted on gauge panel in front of operator. Normal readings with engine hot are: Idling—4 pounds minimum; governed speed—25 pounds minimum. Engine must not be operated when oil pressure falls below 25 pounds at governed speed under full load. If oil pressure falls below 3 pounds, the "LOW OIL" tell-tale will light, buzzer will sound, and the safety control relay will stop the engine. Refer to "Engine Alarm System" below.

Engine Temperature

Engine temperature gauge (12, page 2) marked "WATER" is located on gauge panel in front of operator. Efficient operating temperature range is 160°F. to 180°F. Avoid moving coach, if conditions permit, until temperature is up to 140°F. If engine overheats (212°F.), the "HOT ENG." tell-tale will light, buzzer will sound, and the safety control relay will stop the engine. Refer to "Engine Alarm System" below.

Generator Not Charging

The word "GEN" will light up on generator tell-tale (indicating generator not charging) when the "MASTER" control switch is in "DAY" or "NITE" position and engine is not running or when the generator is not charging and engine is running (normal operation). If the "GEN" light appears during normal operation, undertake action as directed later under "Emergency Conditions," page 31.

ENGINE ALARM SYSTEM

The engine is equipped with an alarm system to signal low oil pressure and high engine temperature. "LOW OIL" and "HOT ENG." tell-tales are located in gauge panel (page 2). In addition, an alarm buzzer sounds when either condition occurs. These coaches have an automatic shut-off system, operating through a safety control relay which is interconnected with the alarm system.

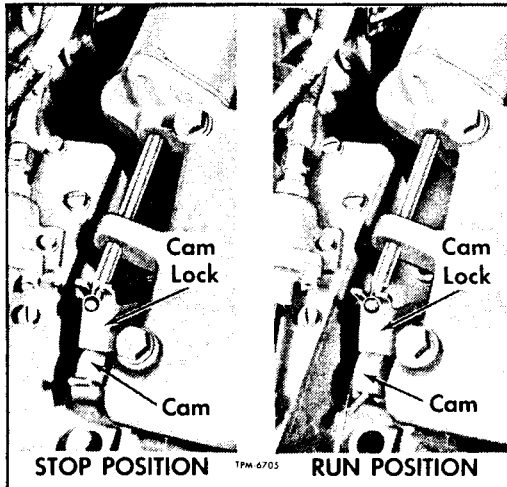
The safety control relay system acts to shut off the engine when one of these abnormal conditions occur.

The safety control relay action can be overruled by holding the "START" switch up in "STOP OVERRULE" position after engine has started, permitting continued movement of the coach to safety. **Under no condition should the engine be run after point of safety is reached, or restarted until the abnormal condition is corrected; otherwise, DAMAGE TO ENGINE will result.** Refer to "Emergency Conditions" on page 31.

STOPPING ENGINE

1. Apply hand brake and place transmission shift lever in neutral.
2. Place the "MASTER" control switch in "OFF" position. This will activate the governor shut-off mechanism and stop the engine.

ENGINE EMERGENCY STOP



Emergency Stop Solenoid

The "EMERG. STOP" switch (12, page 3) on control panel at left of driver is used only as an emergency measure in the event engine fails to stop when "MASTER" control switch is placed in "OFF" position. The "EMERG. STOP" switch is a "momentary-on" type switch. Guard over switch must be swung to one side to expose switch button. When button is pressed inward, a solenoid releases cam on air choke valve, permitting valve to close, thus shutting off air supply to engine.

Important

When "EMERG. STOP" switch has been used to stop engine, the choke valve must be manually reset at the engine (see illustration). Rotate cam until shoulder of cam engages cam lock.

Caution

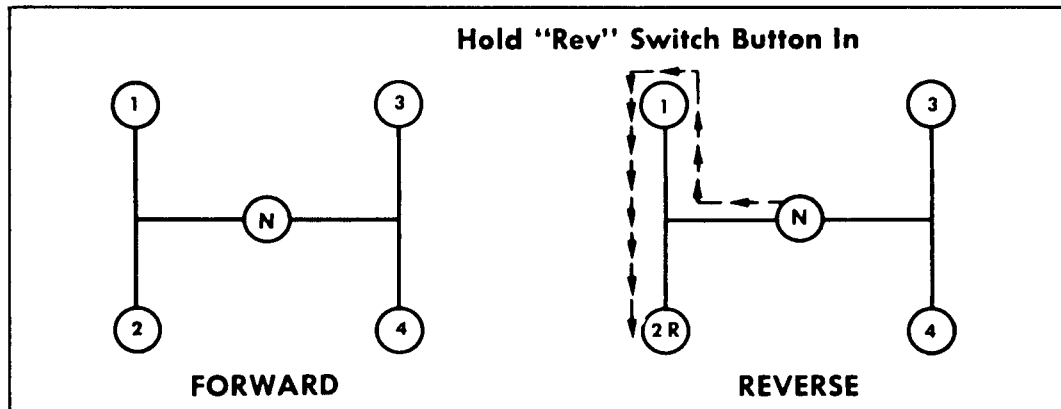
Use emergency stop **ONLY** in emergency. Do not use for normal stopping of engine. Do not restart engine until reason for loss of control has been determined and corrected.

TRANSMISSION LOW OIL PRESSURE

"TRANS OIL" tell-tale (13, page 2) located in left tell-tale panel is used to indicate transmission low oil pressure. If tell-tale comes on during operation, stop coach; low oil level in transmission or a faulty oil pump is indicated. Determine cause and correct before proceeding.

USE OF TRANSMISSION

Transmission has four forward speeds and one reverse. Shift is made into the various forward speeds with a conventional shift lever. Reverse gear is obtained by using an electric solenoid in conjunction with the shift lever. Solenoid is controlled by a "REV" (reverse) switch (13, page 3) on switch panel.



Transmission Shift Chart

Upshifting

Double-clutching method is recommended when shifting gears. Always start vehicle moving in 1st gear and progressively shift to 2nd, 3rd, and 4th; do not skip gears. Remain in each gear until engine nears governed speed before shifting into the next higher gear.

Downshifting

Always shift into next lower gear before the engine starts to lug. Use the double-clutching method of shifting. Make use of lower gears going up and down grades, when on *ice*, in *snow*, or in *mud*.

Use the same gear to go down a grade as would be used to go up the same grade. Bear in mind that the Diesel engine is an effective brake in checking vehicle speed when going down a grade. Braking effect of the engine increases with its speed; however, *the maximum engine speed must not exceed its governed speed.*

Reversing

The "MASTER" control switch must be in "DAY" or "NITE" position before "REV" switch will be operative.

With coach completely stopped, depress clutch pedal and move transmission shift lever from neutral into **first gear position**.

While holding "REV" switch button in, move shift lever to reverse position (normally 2nd). Slowly release clutch and accelerate.

To shift out of reverse, the coach must be completely stopped. With clutch pedal depressed, move shift lever from reverse to **1st gear position** or into neutral. It is not necessary to use the "REV" switch when shifting out of reverse. If reverse gear position cannot be obtained, refer to "Emergency Conditions" on page 32.

USE OF SERVICE BRAKES

Service brakes on these coaches are air-operated and are applied by pressing brake treadle, located to the left of accelerator pedal. Varying degrees of brake application are obtained by varying the foot effort applied to the treadle.

Bear in mind that the best braking can be obtained by making the initial brake application gradually to extent of brake required. Application pressure should then be reduced gradually as speed is reduced so that at end of stop only a slight pressure remains in the brake chambers.

Do Not "Fan" The Brake Treadle

This practice causes poor brake performance, wastes air pressure, and causes excessive wear on brake operating units and brake lining. "Fanning" does not increase brake line pressure, but decreases both reservoir and line pressure.

When brake treadle is depressed, stop light switch functions to light stop lights. The tell-tale marked "STOP LAMP" on gauge and tell-tale panel will light, indicating stop lights are functioning. Failure of tell-tale to illuminate when brakes are applied indicates burned out bulb or a shorted circuit.

Air Pressure Is Important

Air pressure must be at least 80 pounds before air brakes can develop their full effectiveness. The operator should observe the air pressure gauge frequently. If "LOW AIR" tell-tale lights and buzzer sounds during operation, coach should be stopped and cause of air loss determined. **Manual pressure on the treadle will not operate the brakes without air pressure.**

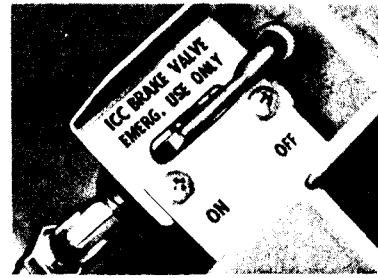
USE OF HAND BRAKE

Hand brake is applied by hand brake lever at left of operator. Hand brakes should always be applied whenever coach is parked. Hand brake should not be used for normal braking; however, it can be used to assist in stopping coach in an emergency.

When hand brake is applied, the tell-tale "HAND BRAKE" on gauge and tell-tale panel will light whenever "MASTER" switch is in "DAY" or "NITE" position. When hand brake is applied, a buzzer will sound when transmission is placed in low gear (1st) position.

USE OF ICC EMERGENCY BRAKE VALVE

The emergency brake valve is located on panel just to the right of driver's seat. The two-position valve lever must always be in "OFF" position for normal operation. When valve lever is placed into "ON" position, brakes on rear axle are applied.



Caution

THIS "ICC BRAKE VALVE" IS FOR EMERGENCY USE ONLY WHEN OPERATOR IS UNABLE TO STOP COACH WITH THE USE OF SERVICE AND HAND BRAKES. MOVING THE LEVER TO "ON" PRODUCES A QUICK AND SEVERE STOP. THIS SYSTEM MUST NEVER BE USED AS A PARKING BRAKE AS LOSS OF AIR WILL PERMIT BRAKES TO RELEASE.

USE OF LIGHTS

When necessary to operate coach under conditions where exterior and interior lights are required, the "MASTER" control switch on panel at left of operator must be turned to either the "NITE" or "PARK" position, with the exception of the interior general lights and step light, which can be illuminated at any time using separate switches.

The headlights can be illuminated with "MASTER" control switch in "DAY" or "NITE" position using "HEADLIGHTS" switch located on control panel at left of operator.

Operation of lights and light switches is explained later under applicable headings.

Important

If in case of emergency it becomes necessary to park coach on street or highway, day or night, emergency flasher lights must be turned on until flags, flare pots, or fusees are displayed. Refer to page 31 for use of "EMERG FLASHER" switch.

USE OF LIGHTS (Cont.)

Operation of Headlights and Fog Lights

With the "MASTER" control switch (10, page 3) in "DAY" or "NITE" position, and with "HEADLIGHTS" switch in "HEADLIGHTS" position, either headlights or fog lights can be selected with floor-mounted foot switch (22, page 1). When headlights are selected, the high and low beams can be selected by another foot-operated (dimmer) switch (23, page 1) on the floor. When headlight high beam is selected, the tell-tale "HI-BEAM" is illuminated. The lower beam is generally used on lighted highways or when approaching oncoming traffic. When fog lights are selected, the tell-tale "FOG LAMP" is illuminated.

Light Switches

The majority of exterior and interior lights are controlled by the "MASTER" switch on control panel at left of operator. Location and operation of other switches are explained below:

"GEN'L Switch"—A two-position switch (8, page 3) marked "GEN'L" and "NORM" is located on control panel at left of operator. Switch controls the general lamps.

General Lights—Will light under the following conditions:

1. "MASTER" switch in any position including "OFF" and "GEN'L" switch in "GEN'L" position.
2. "MASTER" switch in "PARK" position, regardless of the position of the "GEN'L" switch.

Reading Lights—Circuit is energized when "MASTER" switch is in "NITE" or "PARK" position.

NOTE: Whenever reading light switch is energized, individual reading light switches can be controlled by the passenger.

Other Lights

Driver Light—Switch (4, page 3) on control panel at left of operator controls light mounted above driver.

Restroom Lights—A night light becomes illuminated when "MASTER" switch is in "NITE" or "PARK" position. "OCCUPIED" sign light and interior light become illuminated when restroom door is locked from the inside.

Baggage Compartment Lights—Baggage compartment lights are controlled by automatic switches at compartment doors.

USE OF LIGHTS (Cont.)

Other Lights (Cont.)

Engine Compartment Lights—Engine compartment lights are controlled by a two-position switch marked “COMP’T. LAMPS” on engine compartment control panel (page 30).

Directional Signal Switch—The directional signal switch handle is located in steering column just under the steering wheel. With switch lever up, the front left turn signal, left side turn signal, and the rear left stop light flash on and off for a left turn. With lever down, similar right lights flash to indicate right turn. With switch lever either down or up, the tell-tale “DIRECT SIG” (7, page 2) flashes, indicating that lights are operating. If tell-tale fails to flash, a burned-out bulb is indicated.

Stop Lights—Right and left stop lights illuminate whenever brakes are applied. The tell-tale “STOP LAMP” (8, page 2) illuminates, signalling that lights are operating when brakes are applied.

Heating and Cooling Compartment Light—The heating and cooling compartment light is controlled by switch located on side of control bracket hanging from ceiling of outer compartment.

Aisle Seat Lights—Aisle seat lights are controlled by switch marked “SEAT LIGHTS” located on control panel at left of operator; however, “MASTER” switch must be in “NITE” or “PARK” position for lights to become illuminated.

Air Conditioning Condenser Compartment Light—Light becomes illuminated automatically when hinged condenser coil is unlatched, providing the “VENTILATION” switch on control panel at left of operator is in “AIR CONDITION” position and engine is running. When condenser coil is unlatched, the air conditioning system will automatically stop operating.

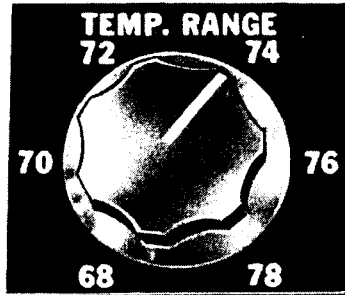
Refrigerant Receiver Tank Light—Light for viewing level of fluid in receiver tank can be illuminated by using switch located in baggage compartment at rear of tank. “VENTILATION” switch at left of operator must be in “AIR CONDITION” position and engine must be running before light will illuminate.

Entrance Door Step Light—Lights whenever “CHIME” switch is on and door is open.

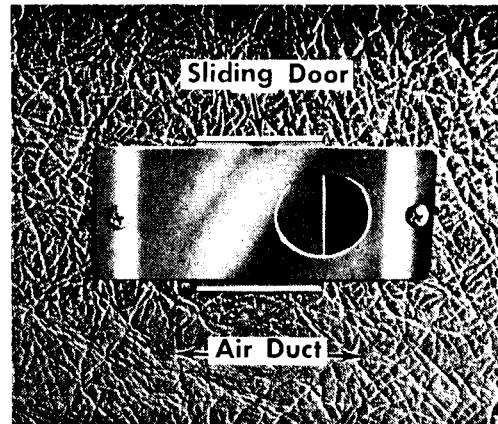
Emergency Flashing Signal Switch—Refer to “Emergency Conditions” on page 31.

HEATING AND AIR CONDITIONING

A single control (9, page 3) on control panel at left of operator is used to control the heating and air conditioning systems. Control is marked "VENTILATION" with positions "OFF," "BLOWER-LOW-HI" and "AIR CONDITION."



Thermostat Control



Underseat Air Outlet

An additional control, marked "TEMP. RANGE" at rear of driver's control panel, is employed to regulate the thermostat setting as desired. The thermostat temperature setting can be regulated within a range from 68°F. to 78°F. by use of this control.

Warm or cool air can be admitted onto feet of passengers if desired by opening sliding door in floor air duct at each set of seats.

Heating System Operation

Operation of the heating system is completely automatic whenever the coach engine is running and the "VENTILATION" switch on control panel at left of operator is placed in either "BLOWER"—"LOW" or "HI" position. The recommended position for the "BLOWER" switch is "LOW"; however, if additional circulation of air is desired, the switch can be placed in "HI" position. With switch in either "HI" or "LOW" position, the underseat blower motor at left rear of coach also becomes operative.

When system calls for heat, tell-tale "HEAT ON" on tell-tale panel lights up.

Important

Excessive use of defroster heater at front end may cause high temperature in front of coach, thereby satisfying the thermostat control and leaving the rear area of the coach cold.

HEATING AND AIR CONDITIONING (Cont.)

Air Conditioning System Operation

Air conditioning system operates automatically when the coach engine is running and the "VENTILATION" switch (9, page 3) on panel at left of operator is placed in "AIR CONDITION" position.

NOTE: Air conditioning will not become engaged until engine is at idle, air pressure at least 65 pounds, and engine oil pressure at least 15 pounds. To engage air conditioning while underway, disengage clutch and release accelerator until engine speed drops to idle.

With system operating, the blower motors will operate at high speed. If air conditioning system should fail to operate, a tell-tale marked "A/C STOP" will light on gauge and tell-tale panel in front of operator. If tell-tale comes on during operation, turn "VENTILATION" switch to "OFF" position. Report condition to maintenance personnel as soon as possible.

When operating system while vehicle is parked, operate coach engine at fast idle speed. Place switch marked "FAST IDLE" on driver's control panel in "FAST IDLE" position. This automatically applies the rear brakes.

Important

Before placing coach in motion, "FAST IDLE" switch must be returned to "OFF" position to release the brakes.

During operation of air conditioning system, keep windows closed and do not leave door open for excessive periods. Windows can be locked by tightening set screw below nylon plunger in each lock.

The air conditioning refrigerant level can be checked only when the system is in operation. Access to refrigerant tank sight level port is gained from within left side large baggage compartment. Illuminate receiver tank, using switch at side of observation port in compartment front bulkhead.

Note

Air conditioning system will not operate if hinged condenser coil at left side of coach is not completely closed and locked.

Operator's Heat and Cooling Control

Air flow into driver's compartment is controlled by a manually operated damper (1, page 1) in duct near floor at left of driver. Heat can also be directed toward driver's feet from the defroster heater compartment by opening damper at right of accelerator pedal.

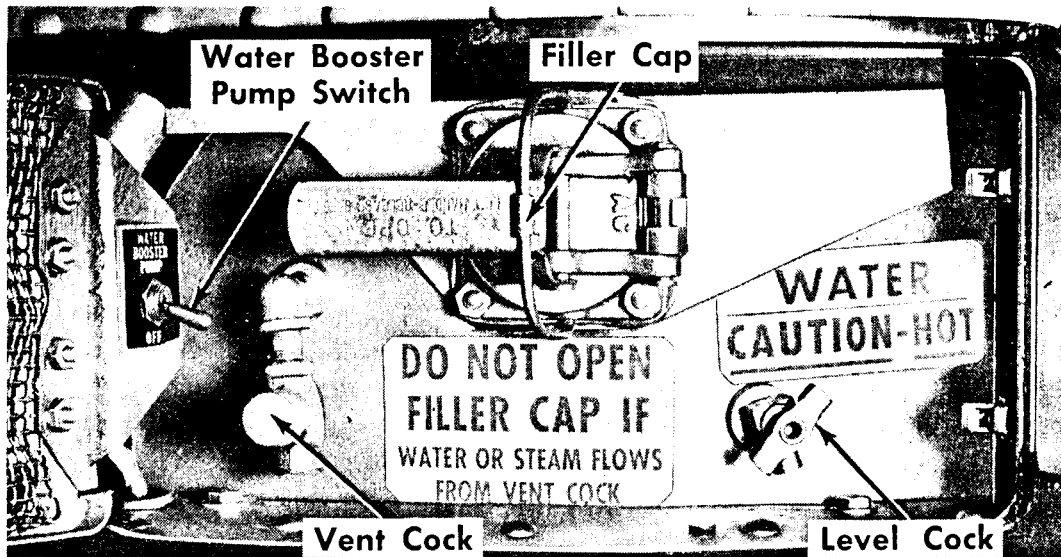
VENTILATION

If use of heating or air conditioning system is not required, or if systems are inoperative, ventilation can be obtained in coach in the following manner:

1. Place "VENTILATION" switch on driver's control panel in "BLOWER—LOW or HI" position to operate underfloor blower.
2. Operator's window can be opened as explained on page 6. Front and rear half of each passenger side window can be opened; release lock on front or rear half by pressing plunger in, then slide window open.
3. Outside air can be admitted at front of coach through a screened opening into defroster heater compartment. Push cowl vent control (12, page 1) completely forward to open vent. Do not position control part way.
4. Outside air is admitted into the heating and cooling recirculating air chamber through an opening on each side of body.

ENGINE COOLING SYSTEM

In addition to controlling the operating temperature of the coach engine, the engine cooling system provides heated water for circulation through the coach heating system.



Surge Tank Filler, Vent Cock, and Level Cock

Engine cooling system filler cap, vent cock, and level cock are accessible through door (13, page 25) at left rear corner of coach.

Vent cock is a spring-loaded button type valve, provided as a safety feature to release steam or pressure from the system before the level cock or filler cap are opened. Always press the button before opening either the filler cap or level cock.

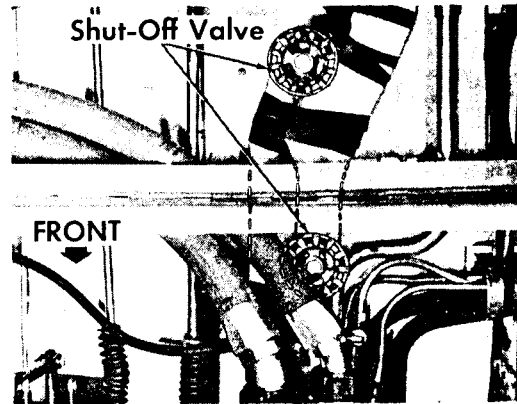
ENGINE COOLING SYSTEM (Cont.)

As a further precaution, a safety catch on filler cap prevents completely opening the filler cap in one operation.

To open filler cap, pull handle until cap is opened to limit of safety catch. After any existing steam or pressure has escaped, release safety catch and completely open cap. When filler cap is closed, handle should be pressed down to secure safety catch on cap.

Water level cock is provided to determine when system is full during initial filling, and to indicate the need of adding water during or after operation. Always press the vent cock button before opening level cock.

Two gate valves in heater lines, located below floor at rear of the rear axle, can be closed to separate the heating system from the engine cooling system. This feature is provided mainly for maintenance purposes. Shut-off valves must be open for heating or air conditioning system to operate properly. Valves should be completely closed or fully open—never part way.



Heating System Shut-off Valves

Replenishing System

1. Always press vent cock valve button before opening level cock to check level of water. If water does not flow from level cock, additional water is required.

2. Open radiator filler cap. With engine running, add water until it flows from open level cock. Close level cock. Close filler cap and latch securely.

Caution

If engine becomes overheated, do not add cold water immediately. Wait until boiling has stopped and engine cooled, then add water slowly with engine running.

Draining Cooling System

If only the engine cooling system is to be drained, close the two heater line gate valves. If necessary to completely drain the system, such as to prevent freezing, the heating system must also be drained. Drain points are listed on page 22.

NOTE: If it is necessary to drain cooling system to prevent freezing, the restroom water tanks and water pump should also be drained as directed on page 29.

ENGINE COOLING SYSTEM (Cont.)

Draining Cooling System (Cont.)

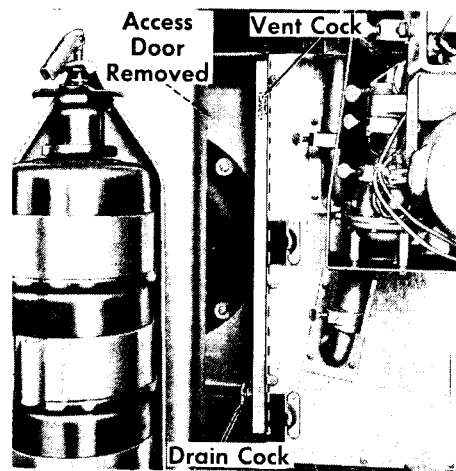
ENGINE DRAIN POINTS

Radiator—Remove drain plug from radiator outlet connection under coach at lower left corner.



Draining Oil Cooler

Water Filter—Remove drain plug from bottom of water filter housing.



Heater Core Vent and Drain Cocks

Cylinder Head and Block — Open drain cock at front and rear of lower cylinder head.

Oil Cooler — Open drain cock at bottom of oil cooler housing. Drain cock is accessible after swinging radiator core outward.

Air Compressor—Remove drain plug from air compressor cylinder block.

HEATER DRAIN POINTS

Defroster Heater Core — Remove fire extinguisher from dash compartment. Open two wing-type drain cocks on heater supply and return lines. It is necessary to reach down under heater core to reach drain cocks.

Underfloor Heater Core—Open heating and A/C compartment door (23, page 25). Drain cock is located at bottom of heater core as shown in illustration at left.

Water Booster Pump—Remove drain plug from bottom of water pump housing. Water pump is accessible after opening heating and air conditioning compartment door.

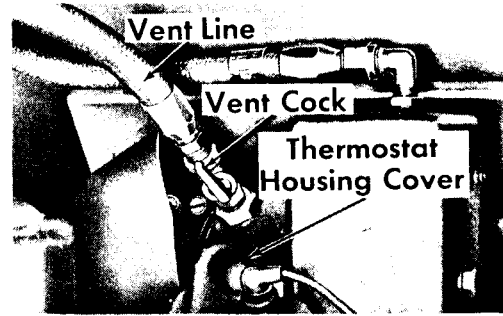
Filling Empty System

1. Make sure all drain cocks are closed and that all drain plugs are installed.
2. If heater line gate valves were closed, open valves.
3. Make sure defroster heater control (13, page 1) is pulled upward to full open position.
4. Add coolant until it flows from level cock on surge tank.

ENGINE COOLING SYSTEM (Cont.)

Filling Empty System (Cont.)

5. Open surge tank vent line cock at engine thermostat cover. Cock is shown in illustration at right.
6. Start engine and run at a fast idle until normal operating temperature is reached. Leave engine running at normal idle.
7. Vent underfloor heater core by opening vent cock at upper right corner of core. Vent cock is accessible after opening the heating and air conditioning inner compartment door. See view on page 22.
8. Using a screwdriver through small hole in defroster heater compartment panel, open vent screw (14, page 1) at upper left corner of defroster heater core. Close vent screw when all air is expelled.
9. At surge tank opening, hold lever of "WATER BOOSTER PUMP" switch up for a minute or more which will speed up circulation through lines and heater cores to quickly vent or purge remaining air from system.
10. Add additional coolant until coolant runs from level cock. Close level cock, filler cap, and engine to surge tank vent line cock.



Surge Tank Vent Line Cock

Water Filter

Water filter is mounted at right rear corner of engine compartment. Purpose of filter is to filter and condition water in the engine cooling system. Instructions for servicing the filter element are explained on side of filter.

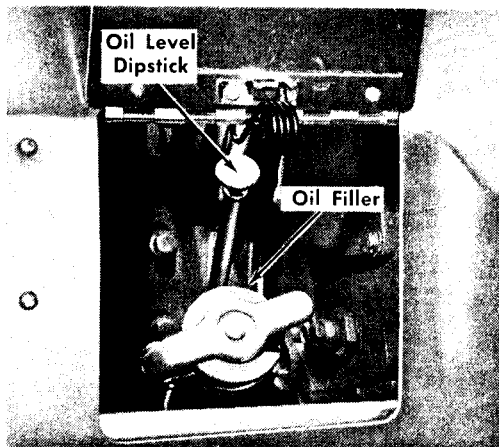
IMPORTANT: Do not use ethylene glycol base anti-freeze, rust preventive, inhibitor of any kind, or any radiator sealer compound with water filter, unless first removing the element assembly from filter. The use of such materials reduces the efficiency of the filter.

ENGINE CRANKCASE OIL

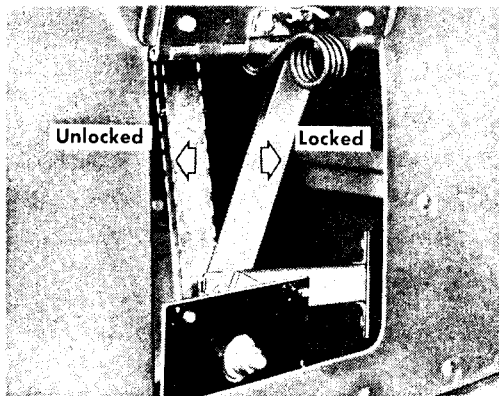
Engine oil dipstick and oil filler are accessible through access door (14, page 25). A measure with a long pouring spout must be used to add oil through access door; otherwise, engine compartment door (16, page 25) must be opened.

Always leave engine stopped for approximately three minutes before checking oil level.

ENGINE CRANKCASE OIL (Cont.)



Access to Engine Oil Level Dipstick and Filler



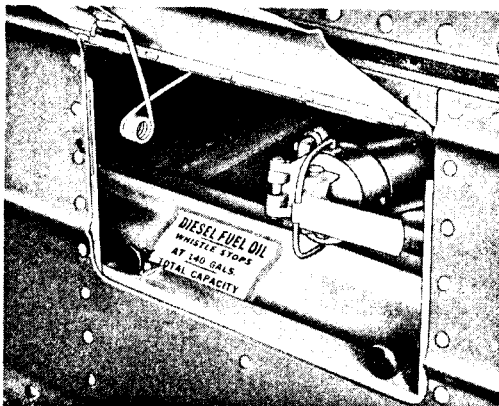
Engine Compartment Door Lock Release Handle

To open access door, pull lower edge of door outward and up. Door will remain in raised position.

Withdraw dipstick and wipe with clean rag. Insert dipstick, then withdraw and note oil level. If down to "LOW" mark, sufficient oil must be added to bring level up to "FULL" mark. If necessary, add crankcase oil of proper grade and viscosity.

To open engine compartment door, reach through access door opening at lower right corner and swing latch handle to the left to unlatch door. Raise compartment door to full open position and insert stop pin in hole of right telescopic support to hold door in raised position. To close door, lift door and remove stop pin; lower door to closed position. Hold compartment door closed, then move latch handle fully to the right.

ENGINE FUEL OIL



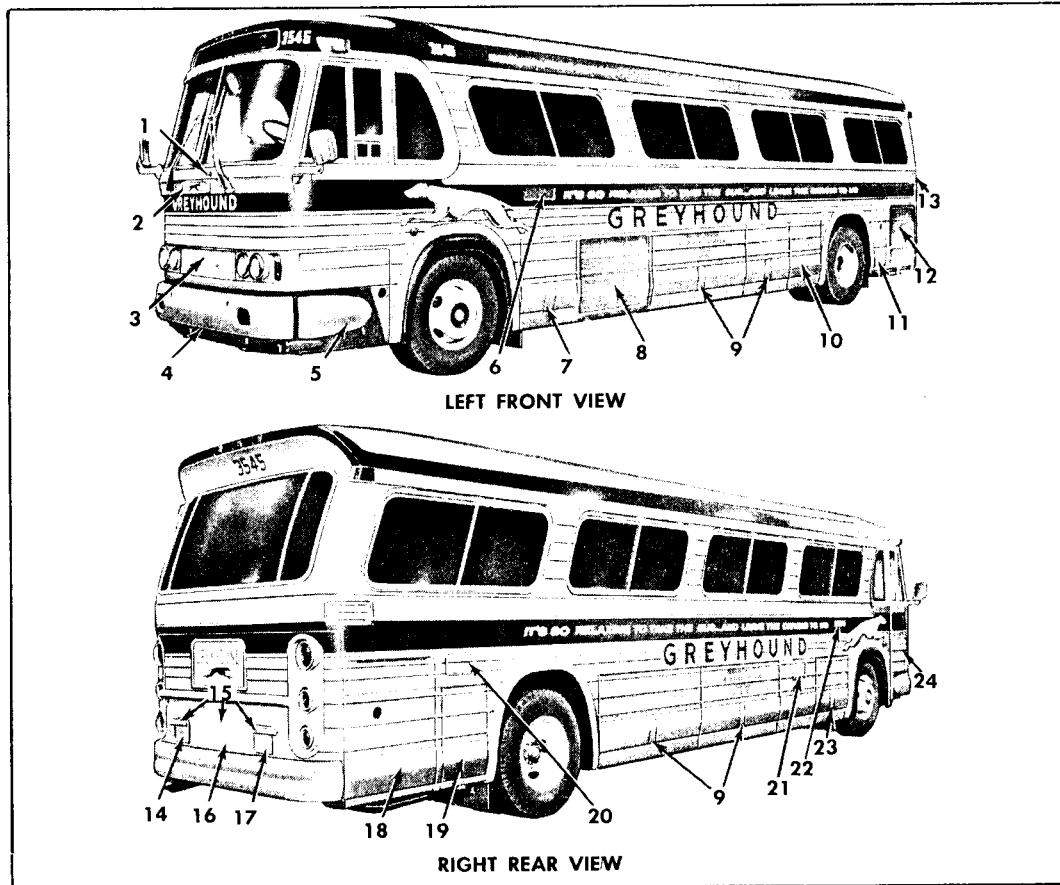
Engine Fuel Tank Filler

The engine fuel oil tank filler is accessible through access door (21, page 25) at right side of coach.

Fuel tank is equipped with a "Ventalarm" system. The "Ventalarm" whistle blows while tank is being filled, and stops blowing when tank is filled to amount indicated on decal on filler door. Use only Diesel fuel oil of the correct grade. After filling, close filler cap securely and close access door.

EXTERIOR COMPARTMENTS

Exterior views identify all exterior compartment and access doors. Methods of opening and closing main doors are explained on following three pages.



Coach Exterior Compartments

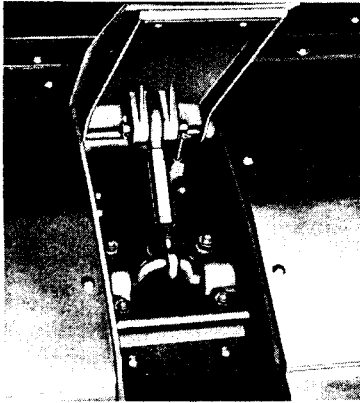
- | | |
|---|--|
| 1 Entrance Door Release | 14 Access Door to Engine Oil Dipstick |
| 2 Cowl Vent | 15 Rear License Plate Location |
| 3 Front License Plate Location | 16 Engine Compartment Door |
| 4 Spare Tire Compartment Door | 17 Access Door to Engine Compartment Door Latch Handle |
| 5 Left Front Compartment Door | 18 Transmission Compartment Door |
| 6 Left Side Air Intake | 19 Electrical Apparatus Compartment Door |
| 7 Baggage Compartment Door | 20 Access Door to Restroom Service Fittings |
| 8 Air Conditioning Condenser Compartment Door | 21 Fuel Tank Filler Door |
| 9 Baggage Compartment Doors | 22 Right Side Air Intake |
| 10 Battery Compartment Door | 23 Heating and Air Conditioning Compartment Door |
| 11 Air Conditioning Compressor Compartment Door | 24 Passenger Door |
| 12 Radiator Grille Door | |
| 13 Radiator Filler Door | |

EXTERIOR COMPARTMENTS (Cont.)

Heating and Air Conditioning Compartment Door

Heating and air conditioning compartment door (23, page 25) is equipped with same flush-type latch as used on baggage compartment doors described below. Door is held in raised position by a single prop attached to door and engaged in bracket at body pillar. Before closing door, retain prop in door clip.

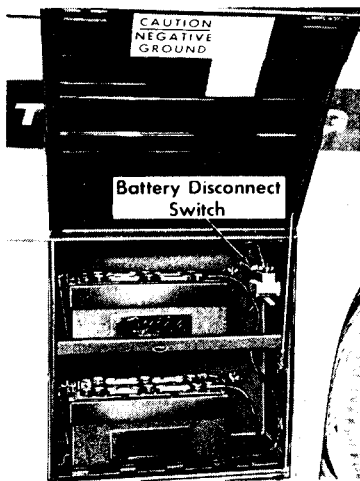
Baggage Compartments



Each baggage compartment door (7 and 9, page 25) is equipped with a flush-type latch located at center of door lower edge.

Pull out and up on handle to unlatch door. Raise door to full-open position and install stop pin in hole of door support. To close, lift door slightly and remove stop pin, then carefully lower door. **DO NOT DROP TO CLOSED POSITION.** To lock door, lift up on door latch, hold door closed, then push latch down.

Battery Compartment



Battery compartment door (10, page 25) is located immediately ahead of left rear wheelhouse. Two spring-loaded pull-type latch handles are located at bottom of door. To open, pull latch handles outward and disengage from door; lift door to open position, disengage door prop from clip on door, and engage prop in bracket on body.

To close door, raise door slightly and disengage prop from bracket on body, secure prop in clip on door, then lower door. Pull out on latch handles and engage catches at bottom of door.

Air Conditioning Compressor Compartment Door

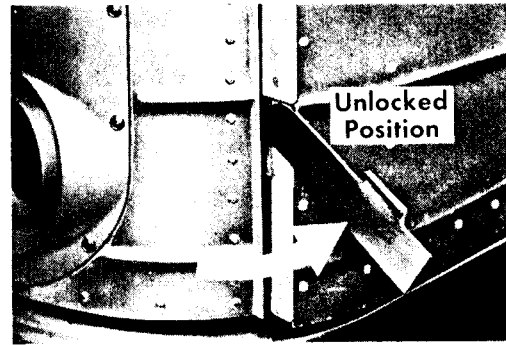
Air conditioning compressor compartment door (11, page 25) is hinged at top and secured at bottom by a single spring-loaded catch assembly.

To open, push down on latch, move latch bail down from safety catch. Raise door, then remove prop from door clip. Position end of prop into body pillar bracket. To close door, engage prop into door clip, then lower door. Engage bail of latch over catch of door, then pull latch handle outward and up.

EXTERIOR COMPARTMENTS (Cont.)

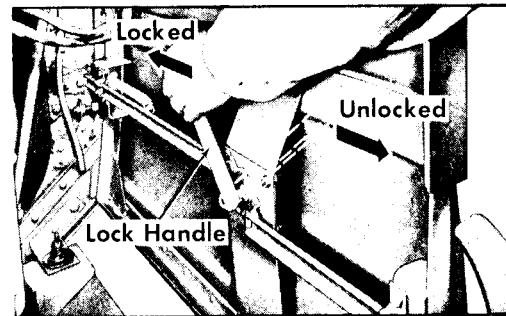
Transmission Compartment

Transmission compartment door (18, page 25) on early vehicles is hinged at forward edge and secured by a lever-type latch at rearward edge. To open, pull out latch lever. To close door, pull out latch lever, hold door in closed position, and push latch lever completely in.



Door Latch (Early Vehicles)

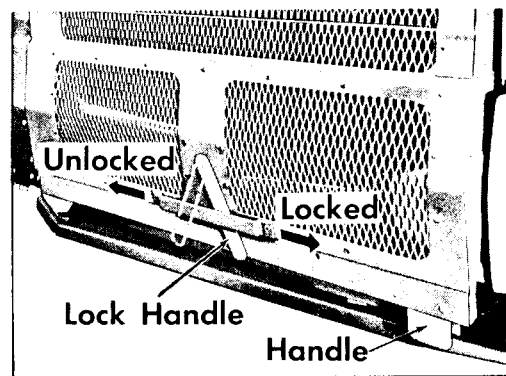
On later vehicles, transmission compartment door is hinged at top and is retained closed by a lever-type lock handle which is accessible only after opening the engine compartment door. To unlock door, pull lock handle rearward. Close and lock door by holding door firmly in closed position, then place the lock handle completely forward.



Door Latch (Late Vehicles)

Radiator Grille Door

Radiator grille door (12, page 25) located at left rear corner of coach, is hinged at top and secured closed at bottom by a spring-loaded catch (early vehicles), or by a lever-type lock handle (late vehicles). View at right shows the lever-type lock handle. Instructions for operating the spring-loaded catch are the same as described for "Air Conditioning Compressor Compartment Door." To unlock lever-type lock retained door, move handle forward, then raise grille door using grab handle at rear lower corner of door. When closing door, secure prop rod in door clip; then, while holding door in firmly at bottom, move lock handle completely rearward. Make sure both front and rear lock rods engage body brackets.



Lever-type Lock Handle Mechanism

EXTERIOR COMPARTMENTS (Cont.)

Air Conditioning Condenser Compartment Door

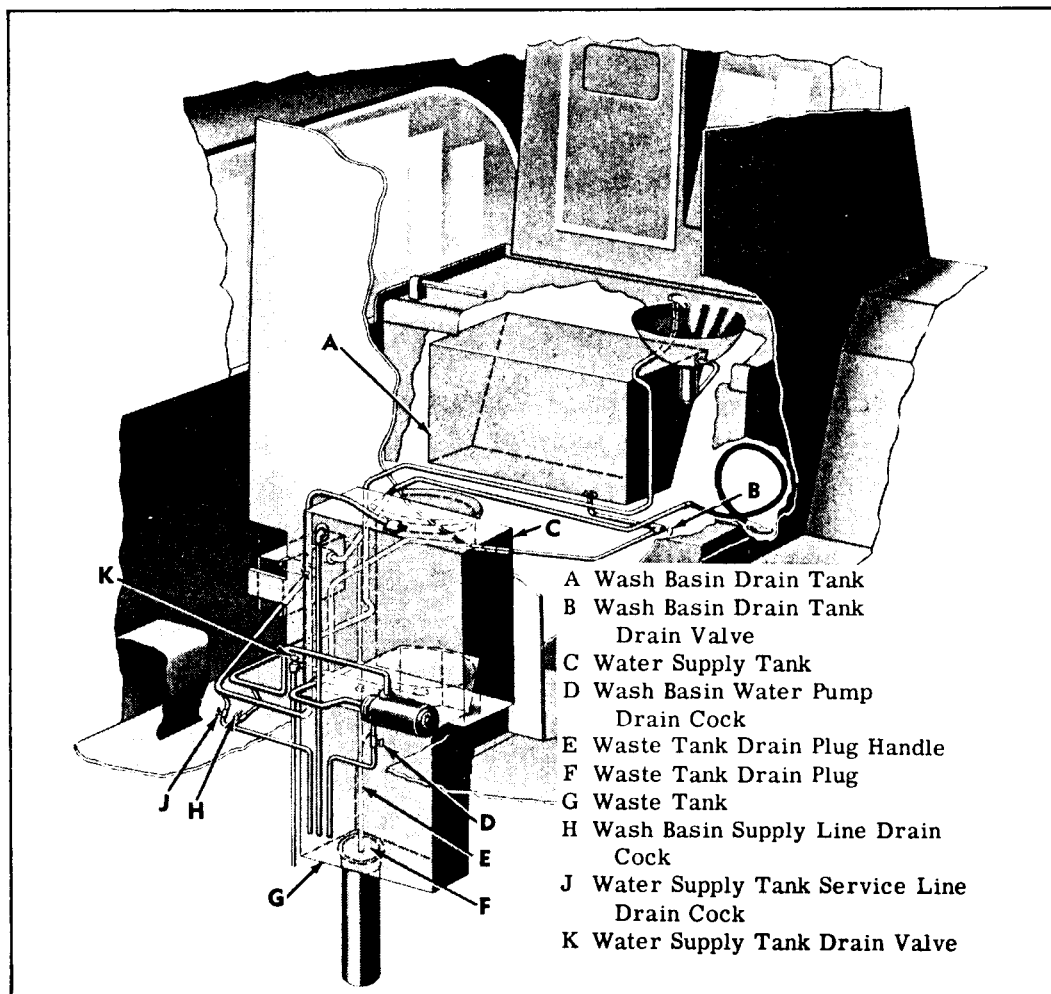
Air conditioning condenser compartment door (8, page 25) is secured at bottom, same as described for "Air Conditioning Compressor Compartment Door" on page 26.

Other Compartments

Spare tire compartment is located behind front bumper and is accessible as explained on page 35. Access to engine compartment is explained under "Engine Crankcase Oil" on page 24.

RESTROOM

Restroom compartment, located at right rear corner of coach, contains a chemical toilet, wash basin with running water, waste paper container, and mirror.



Cutaway View of Restroom System Showing Drain Points

RESTROOM (Cont.)

Restroom compartment ventilation blower runs whenever the engine is running or whenever the restroom is occupied with the door locked from the inside. Closing and locking door from inside also illuminates "OCCUPIED" sign on outside of door and illuminates ceiling lamp over mirror. Emergency bell and wash basin water pump switches are located on walls of compartment with adequately marked instruction plates.

In the event of engine or heating system failure in freezing weather, tanks must be drained to prevent damage from freezing. Valves necessary to drain tanks are located in and at front of restroom compartment. Key letters in the following text refer to illustration on page 28.

IMPORTANT: Servicing restroom tanks must normally be accomplished where proper facilities are available. Draining instructions included in this book are for use only in case of an emergency requiring draining of tanks.

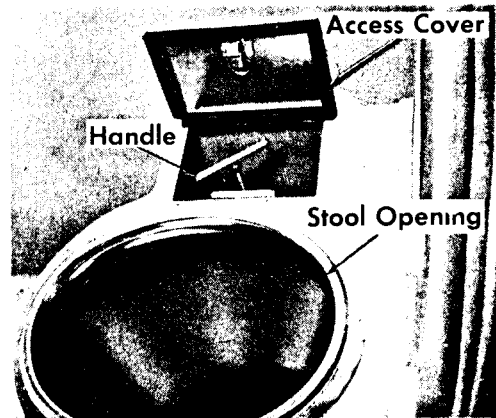
Before draining the toilet waste tank (G), if at all possible position coach over a receptacle or sewer inlet or other facilities to comply with local health regulations. Raise toilet seat and cover, then lift up handle (E) to pull plug (F) out of bottom of tank. Leave handle in raised position.

Wash basin drain tank (A) must be drained through the toilet waste tank (G). Open access door for access to drain valve (B).

Open drain valve (B) to permit waste water in tank (A) to drain into waste tank (G).

To drain supply tank (C), open valve (K) to permit tank to drain. Leave valve open.

Open drain cock (H) to drain wash basin supply line. Open drain cock (J) to drain supply tank service line. Open drain cock (D) to drain wash basin water pump. Drain cocks (D, H, J, and K) are accessible at rear of right rear passenger seat after removing seat cushion.



Waste Tank Drain

Important

After emergency drain, restroom system must be serviced at the earliest opportunity when conditions will permit.

EMERGENCY CONDITIONS

Operation of Engine at Rear of Vehicle

Switches for starting and stopping the engine at the rear are mounted on switch panel at right side of engine compartment. Open engine compartment door (16, page 25) as directed under "Engine Crankcase Oil" on page 24 for access to switch panel.

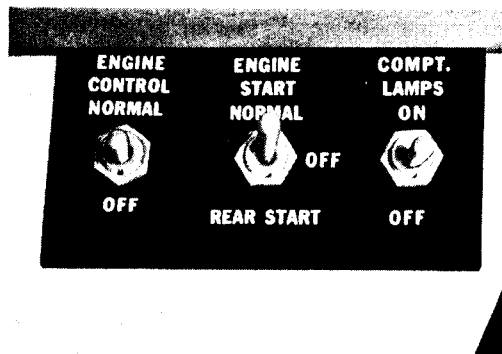
Starting Engine at Rear

IMPORTANT: Before attempting to start engine at rear of vehicle, place transmission shift lever in neutral and fully apply hand brake.

1. In operator's compartment, place "MASTER" switch in "DAY" position.

2. At engine compartment control panel, make sure "ENGINE CONTROL" switch lever is in "NORMAL" position.

3. Hold "ENGINE START" switch in "REAR START" position to engage starter. Return switch to "NORMAL" as soon as engine starts. Use the same precautions regarding use of starter as explained under "Starting Engine" at front on page 9.



Engine Rear Control Panel

Caution

If necessary to work on engine without engine running, place "ENGINE CONTROL" switch in "OFF" position. This breaks circuit to starter and prevents accidental starting of engine. After work has been completed, place "ENGINE CONTROL" switch in "NORMAL" position and "ENGINE START" switch

in "NORMAL" position before closing compartment door.

Stopping Engine at Rear

Place "ENGINE CONTROL" switch in "OFF" position. After engine has stopped, return switch to "NORMAL" position. If engine is not to be restarted immediately, place "ENGINE START" switch in "OFF" position.

Important

In emergency only, if "ENGINE CONTROL" switch does not stop engine, push in emergency stop solenoid plunger with fingers to release the choke valve cam. Reset emergency stop after engine has stopped. (page 12).

EMERGENCY CONDITIONS (Cont.)

Engine Oil Pressure Low

In the event the engine lubricating oil pressure drops below three pounds during operation, the alarm buzzer will sound, the "LOW OIL" tell-tale will be illuminated, and the safety control relay will stop the engine. Stop the vehicle and turn "MASTER" switch to "OFF" position. Method of checking and replenishing engine crank-case oil is described on page 23. The safety control relay alarm system can be overruled as explained under "Engine Alarm System" on page 11.

Generator Not Charging

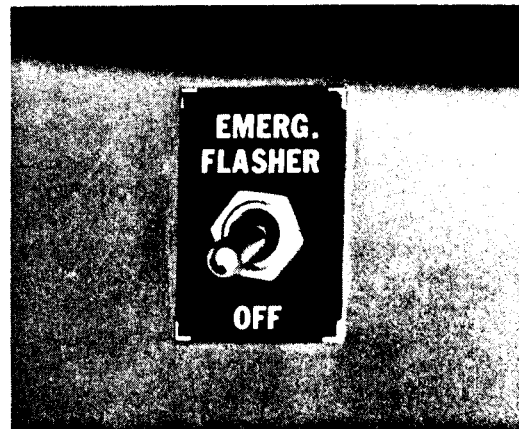
If "GEN" tell-tale lights, indicating that generator is not charging, turn off all electrical accessories (except necessary lights at night). If necessary to continue driving coach to point of service with generator not charging, leave all electrical accessories except necessary driving lights off.

Engine Overheated

If engine becomes overheated during operation, the alarm buzzer will sound, the "HOT ENG." tell-tale will be illuminated, and the safety control relay will stop the engine. Stop the vehicle and turn "MASTER" switch to "OFF" position. Check for cause of overheating condition. Refer to page 21 for instructions on replenishing water in cooling system. The safety control relay alarm system can be overruled as explained under "Engine Alarm System" on page 11.

Emergency Flashing Signal System

All vehicles are equipped with a flashing signal system whereby all directional signal lights can be controlled to flash simultaneously in an emergency. System becomes operative when the "EMER. FLASHER" switch (6, page 1) on dash panel at left of steering column is placed in "FLASHER" position. "DIRECT SIG" and "STOP LAMP" tell-tales flash when system is operating.



Emergency Flasher Switch

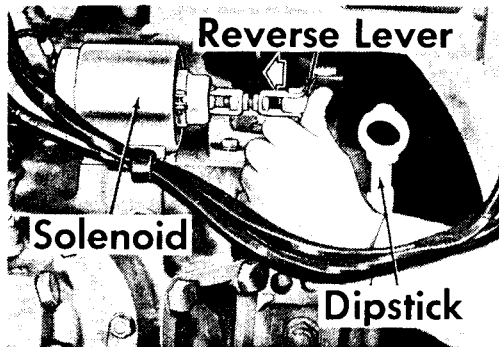
IMPORTANT: If "DIRECT SIG" tell-tale fails to flash, it is an indication that two of the four front bulbs are burned out. If "STOP LAMP" tell-tale fails to flash, it indicates that one of the stop light bulbs is burned out.

EMERGENCY CONDITIONS (Cont.)

Transmission Oil Pressure Low

If tell-tale marked "TRANS OIL" on gauge panel lights up during operation, it indicates that transmission oil pressure is low. Stop coach, determine cause and correct before proceeding.

Transmission Manual Reverse Shifting Procedure

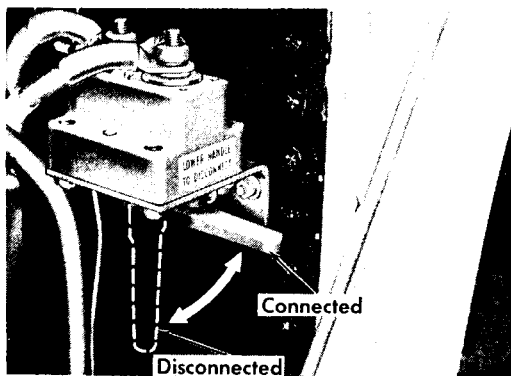


In the event reverse gear position cannot be obtained due to reverse solenoid failure, reverse can be obtained manually by having an assistant hold the reverse solenoid lever inward while the driver proceeds through the normal reverse shift pattern, "N" to "1st" to "2R."

1. Obtain the aid of an assistant and instruct him to press the reverse lever toward solenoid in the transmission compartment AFTER signal is given by the operator. Also instruct him to step to one side to safe area after engagement occurs.

2. Place transmission shift lever in "1st" gear position. Sound horn to signal assistant at rear of coach to press on lever, then move gear-shift lever to "2R" position. Reverse gear engagement should occur. Check whereabouts of assistant before proceeding in reverse motion.

Battery Disconnect



Battery Disconnect Switch

If necessary to disconnect batteries from electrical system, push down on handle of battery disconnect switch, which is located on bulkhead at rear of battery compartment. Refer to page 26 for access to battery compartment. To connect batteries, raise switch handle to horizontal position.

EMERGENCY CONDITIONS (Cont.)

Circuit Breakers

All circuits in the electrical system are protected by circuit breakers. Most of the circuit breakers are located on the junction panel at left of operator and in the electrical compartment at right rear corner of coach.

Whenever a short exists in a circuit, action of the circuit breaker opens the circuit, causing the protected system to cease functioning. After the circuit breaker element cools, the circuit breaker will again be closed. As long as the short exists, action of circuit breaker will continue to intermittently open and close the circuit until the switch controlling the defective circuit is turned off. When such a condition exists, the switch controlling the defective circuit should remain off until the cause of the short is located and corrected.

Fuses

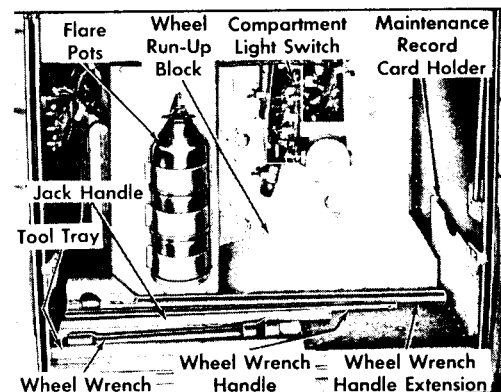
In addition to protection provided by circuit breakers, the following units are further protected by line fuses, installed in the feed line near the protected unit: Speedometer drive unit (6-amp) on top of transmission; restroom ventilation blower motor (6-amp) at rear of restroom compartment; restroom wash basin water pump (9-amp) on floor behind right rear seat; underseat blower motor (6-amp) below floor in A/C compressor compartment; and P.A. amplifier (1-amp) at rear of amplifier.

TOOLS AND SAFETY EQUIPMENT

Vehicle tools, such as wheel wrench, wrench handle, wrench handle extension, wooden run-up block, and the jack handle are carried in the heating compartment. The safety flare pots are also located in this compartment.

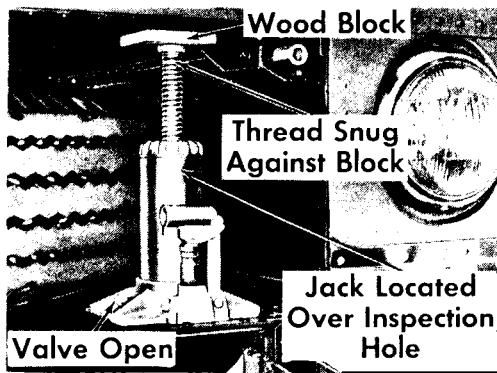
Make sure all tools are placed in position shown after using.

The jack is carried in the spare wheel and tire compartment at front of coach as shown on following page. When locating jack in compartment, open the jack height control valve allowing jack to lower to minimum height. Place base of jack directly over inspection hole in floor of compartment, then with wooden

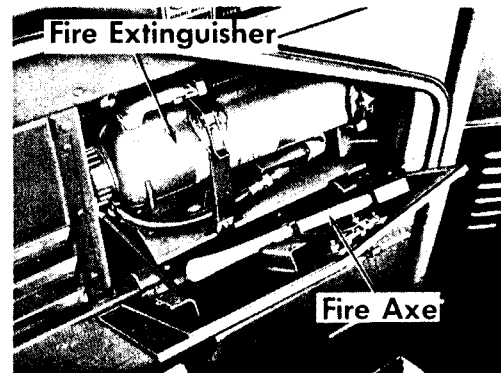


Location of Tools and Equipment in Heating Compartment

TOOLS AND SAFETY EQUIPMENT (Cont.)



**Jack Stowage Location
in Spare Tire Compartment**



**Location of Fire Extinguisher
in Dash Compartment**

block over top of jack, thread jack extension upward to wedge and retain jack in this position. Do not tighten excessively.

The presence of jack in its installed position can be checked without having to lower front bumper by feeling for jack base from below coach through small hole in compartment floor. See left view of spare tire compartment on page 35.

Fire extinguisher is clamp-mounted inside the dash compartment. Familiarize yourself with extinguisher hold-down clamp mechanism. Instructions for operating extinguisher are on instruction plate attached to extinguisher. Fire axe is mounted to compartment door.



First Aid Kit Located above Windshield

The first aid kit, containing basic first aid equipment, is located over windshield directly in front of operator as shown. Two fasteners retain cover of kit closed. The complete kit can be readily removed from coach by lifting kit slightly from heads of mounting screws, then moving it rearward. Remount kit after using. Report any articles used out of kit.

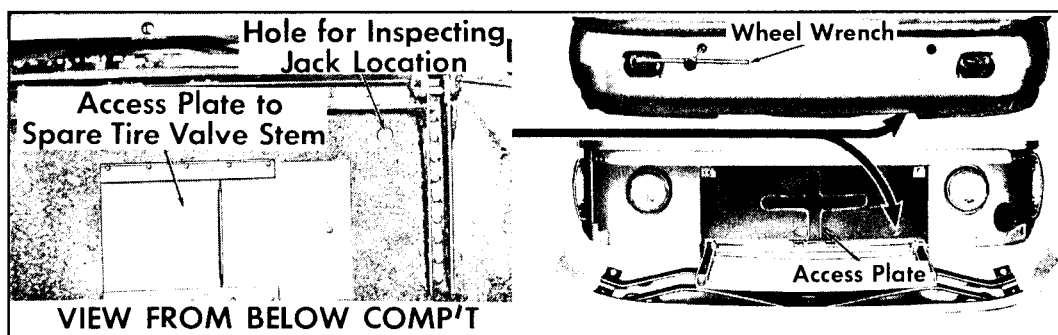
Flags and fusees are located in cylinder-type container (3, page 1) at left of operator. Lift cover for access to flags and fusees. Restock supply at the earliest opportunity.

Important

Before starting a run, check the first aid supply, safety equipment, and wheel changing tools.

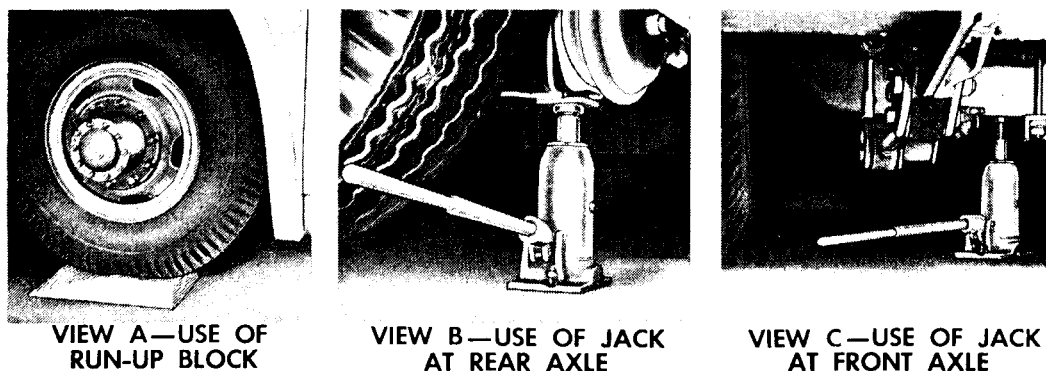
SPARE WHEEL AND TIRE

Spare wheel and tire and jack are stowed in compartment behind front bumper. Small access plate in floor of compartment can be opened to check and inflate spare tire without removing wheel and tire from compartment. Insert wheel nut wrench through openings in bumper and unscrew retaining bolts. Front bumper and compartment door may then be lowered as shown in right view below.



Spare Tire Compartment Is Behind Front Bumper

CHANGING WHEELS



To Change Front Wheel and Tire—Place wooden run-up block in front of deflated tire. Drive vehicle onto block to permit positioning of jack under front axle (see view C above). Fully apply hand brake, then raise vehicle. Remove run-up block and proceed to change wheel and tire.

To Change Outside Dual—Place wooden run-up block at inside tire, then drive vehicle onto block to raise outside dual off ground as shown at view A above. Fully apply hand brake, then proceed to change wheel and tire.

To Change Inner Dual—Fully apply hand brake. Position jack under jack pad on suspension support (view B above). Jack up axle and proceed to change wheel and tire.

GENERAL DATA

Vehicle Height (maximum)	121½ inches
Vehicle Width	95½ inches
Tire Size	11.5/22.5
Fuel Tank Capacity	140 gal. or 165 gal.* *
Cooling System Capacity (including heating system)	92 qt.
Engine Crankcase Capacity	22 qt.*
Hydraulic Steering System Capacity	6 qt.*
Transmission Capacity	Fill to dipstick level
Rear Axle Capacity	9 qt.
A/C Condenser Fan Drive System Capacity	6 qt.

(*) When filling or adding oil, fill to "FULL" mark on dipstick.

(**) Refer to decal on fuel tank for capacity. Location of decal is illustrated on page 24.

ANTI-FREEZE CHART

Engine cooling system should be protected with anti-freeze solutions for temperatures below 32°F. Only ethylene-glycol type anti-freeze should be used. The chart below shows quarts of anti-freeze to be used for protection to various temperatures, based on the total capacity of the engine cooling system and the heating system (92 quarts).

Lowest Expected Temp.	Quarts of Ethylene-Glycol
+10°	23
0°	30½
-10°	35
-20°	39½
-30°	43½

When using anti-freeze in cooling system, the element should be removed from the water filter (refer to page 23).

LIGHT BULB DATA

(All bulbs are Single Contact)

Name	Qty.	Candlepower or Watts	Trade No.
Headlight Sealed-Beam Unit			
(Inside-Stamped No. 1)	2	37.5W	4006
(Outside-Stamped No. 2)	2	37.5-50W	4005
Instrument Panel Lights	4	2	57
Tell-tale Lights	13	2	57
Rear License Plate Light	2	4	67
Corner Marker Lights	4	6	89
Michigan Marker Lights	6	4	67
Destination Sign Lights	4	15	93
Seat Lights	8	2	57
Entrance Door Step Light	1	21	1141
Taillights	2	4	67
Baggage Compartment Lights	5	15	93
Engine Compartment Lights	4	15	93
Driver's Light	1	15	93
Fog Lights	2	32	1011
Front Turn Signal Lights	2	21	1141
Front Side Turn Signal Lights	2	21	1141
Rear Stop and Turn Signal Lights	2	21	1141
Reading Lights	40	15	93 I.F.
General Lights	18	15	93 I.F.
Rear Seat Light	1	21	1141. I.F.
Freon Receiver Tank Light	1	6	89
Restroom (Interior)	1	21	1141. I.F.
Restroom Nite Light	1	4	67
Heating and A/C Comp't Light	1	15	93
Restroom Occupied Sign	2	2	57
Electrical Apparatus Comp't			
Light	1	15	93